

## CLAIMS:

5

1. Method of operating a resonant driver circuit for driving a semiconductor switch, wherein the driver circuit includes a first switch for connecting a power supply via an inductor to a control terminal of the semiconductor switch and a second switch connected to the control terminal of the semiconductor switch for controlling a switching of the semiconductor switch, the method comprising the step of: pre-charging the inductor before a switching of the second switch.
- 10
2. The method of claim 1, wherein the semiconductor switch is a voltage controlled switch wherein the inductor is pre-charged by building up an inductor current prior to the switching of the second switch.
- 15
3. The method of claim 2, wherein the inductor current is built up by providing a time period, during which the first switch and the second switch are switched on.
- 20
4. The method of claim 3, wherein the semiconductor switch has an input capacitance at its control terminal; and wherein the initial current allows for a fast switching of the semiconductor switch.
- 25
5. The method of claim 2, wherein the pre-charging is performed such that the inductor current reaches approximately half of its peak-value before the switching of the second switch.
- 30
6. The method of claim 1, wherein the driver circuit further comprises: a third switch arranged between a power supply voltage and a first end of the inductor; a fourth switch arranged between ground and the first end of the inductor; a fifth switch

arranged between the power supply voltage and a second end of the inductor, wherein the second end of the inductor is connected to the gate of the MOSFET; a sixth switch arranged between ground and the second end of the inductor; wherein a capacitance is arranged between the second end of the inductor and ground; wherein, the first switch

5 is one of the third and fourth switches; wherein, when the first switch is the third switch, the second switch is the sixth switch; and wherein, when the first switch is the fourth switch, the second switch is the fifth switch, such that, for switching the MOSFET on, the sixth switch is kept on for a first period of time after the third switch was switched on, and such that, for switching the MOSFET off, the fifth switch is kept

10 on for a second period of time after the fourth switch was switched on.

7. The method of claim 1, wherein the semiconductor switch is a MOSFET.

8. A control circuit for operating a resonant driver circuit for driving a semiconductor switch, wherein the driver circuit includes a first switch for connecting a power supply via an inductor to a control terminal of the semiconductor switch and a second switch connected to the gate of the semiconductor switch for controlling a switching of the semiconductor switch, the control circuit comprising: a switch controller for controlling the switching of the first and second switches such that the inductor is pre-charged before a switching of the second switch.

15

9. The control circuit of claim 8, wherein the inductor is pre-charged by building up an inductor current previous to the on-switching of the second switch by controlling the switching of the first and second switches by the switch controller such

20

25